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ARTHRITIS, OR GOUT.

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(Concluded from page 107.)

RETROCEDENT, RETROGRADE, OR MISPLACED GOUT.

Gout, though apparently fixed in one of the extremities, is prone to shift its position, and seize on some internal or vital part, creating, sometimes, the most imminent danger. This is what is denominated retrocedent, or retrograde gout, which may locate itself in any one of the organs of the great cavities, though, most commonly, in the stomach, causing nausea, vomiting, and violent spasms, which, if not expeditiously relieved, will often prove fatal. Gastric affections, of this nature, require a very opposite mode of treatment, in their several stages. It is usual to commence with the diffusible stimulants and antispasmodics, such as opium, ether, musk, carbonate of ammonia, the spirit of turpentine, spiced wine, or ardent spirits, either pure, or converted into hot toddy. The stomach here looses its susceptibility, in a very considerable degree, and hence, in prescribing any of the articles mentioned, the dose must be very much increased. This remark applies, perhaps, with peculiar force, to opium, and its preparations, which may be given in three, or four, or five times the ordinary quantity. As co-operating means, hot fomentations to the epigastric region, are not to be overlooked, in the more vehement of these attacks. They contribute to mitigate pain, and sometimes so far tranquilize the stomach, as to check the puking, and thus prepare the way for the exhibition of medicines.

This is the customary mode of managing the early stage of *retrocedent gout*, in the stomach. Not succeeding, it will be proper to take away some blood. Leeches or cups over the epigastrium, may prove very effectual. Cases, however, occur of such urgency, as not to admit of so slow a process, and venesection must be substituted. Yet, as regards the latter, care and discrimination are to be exercised. The pulse here scarcely can be trusted as a guide, being frequently weak, or depressed, in the more violent attacks, and when perhaps, the loss of blood is imperatively demanded. In making up our decision on this point, we should take into view, the strength of the patient, *the intensity of the pain*, the state of temperature on the surface, and, in fine, the degree of probability, as to the power of the system to react, on depletion.

Notwithstanding all the monitory suggestions against it, by many of the European writers, bleeding, and very copious bleeding too, is habitually directed by me, and other practitioners of this city, in gout of the stomach, and with great success. It is the best, and most certain antispasmodic, and if inflammation exists, holds out the only chance of cure.

There are cases to be managed, essentially in the same manner as common colic. Being spasmodic in the beginning, whatever is calculated to resolve the spasm, will be useful. But phlogosis having taken place, and which sometimes happens, even at an early stage, all stimulating articles are to be abandoned, and measures of a directly opposite tendency resorted to, as general and topical bleeding, and a blister to the epigastrium.

Nearly a similar course should be adopted, when it attacks the bowels, which it is almost as apt to do by violent cramps, and obstinate constipation.

The kidneys are also very liable to be assailed, and with the symptoms of ordinary nephritis, which sometimes may be relieved by fomentation, or the warm bath. But when obstinate, general or topical bleeding, blisters over the affected part, and an opiate, the latter answering best as an enema, are required. Lingering cases, I have found singularly benefited by the use of colchicum. Equally is this treatment suited to an attack of the urinary bladder and of the uterus, which is usually betrayed by severe spasmodic pain.

Translated to the lungs, gout produces a state, sometimes imitative of pneumonic inflammation, and, in other instances, of bronchitis or of asthma. The treatment in each instance is precisely the same, as if the attacks had proceeded from the vicissitudes of weather, or any other of the ordinary causes of such complaints.

Cardiac affections from the same cause, are characterised by violent spasms of the heart, or a state resembling syncope, or by an immediate extinction of life, from suppression of the circulation, or by the slower process of inflammation.

As may be supposed, this affection is calculated always, whether it be violent or not, to create great solicitude and apprehension. Without, indeed, the attack be slight, we are precluded altogether, even from the hope of doing good, by the suddenness of

death. Two of the cases which I have met with, terminated almost immediately. Time, however, being allowed to interpose our efforts, venesection and then topical bleeding and blistering constitute the proper means, to be followed up by the use of colchicum or digitalis.

Much of the preceding treatment is equally applicable to gout, when it seizes on the brain. Conforming the practice to the state of the system, we should bleed generally or locally, or both, vesicate the nape of the neck, purge copiously, and do whatever else is called for in other comatose, apoplectic or paralytic conditions, these being the forms which the disease here usually assumes.

In relation to retrocedent gout, there is one precept of universal application, which in practice, must be kept in mind. It is *steadily* to endeavor to invite or restore the disease to the extremities; and, with this view, a pediluvium, made stimulating by the addition of salt, and mustard, or cayenne pepper, and next, sinapisms, or blisters, to the ankles, are the most effectual measures.

ATONIC, OR IRREGULAR, OR MISPLACED GOUT.

By atonic gout, in the ordinary acceptation of the term, is meant, that state, where, though the arthritic diathesis prevails, there is not vigour enough to induce the inflammatory affection of the limbs, or, if it take place, it is slight or transitory, continuing only for a very short time, and then reverting to some inward structure.

Commonly, the individual is persecuted by a group of affections, which appear chiefly in the stomach, such as loss of appetite, nausea, vomiting, acrid and sour eructations, cardialgia, pyrosis, &c.; with pains and cramps, like those of flatulent cholic, sometimes relieved by a discharge of wind. Constipation usually predominates, though alternated by purging. The urine, as well as the other secretions, is scanty and vitiated, attended with tormina and tenesmus. Connected with this state, the tongue is foul, the skin very dry, the breath heavy and offensive, and great depression of the spirits, amounting to melancholy, often prevails, with a constant and anxious attention to the slightest feelings, much aggravated by a thousand disturbed imaginations and idle fears, to which may be added, palpitations of the heart, or angina pectoris, or asthma, or headache, vertigo, &c. &c. Fever can scarcely be said to exist, though the circulation is occasionally quickened, and irritated.

Considering the articulations as the proper seat of the disease, when it primarily appears in any other part, it receives the title of *misplaced gout*. Disposed to wander about the system, as it is very apt to do, then it is denominated erratic gout, and some instances of it are remarkably distinguished by the suddenness and capriciousness of its fluctuations. Generally incident to an atonic state of the system, we, however, sometimes meet with this variety of it, most decidedly otherwise, or actively inflammatory. *Misplaced gout* of the latter description, may occupy any position, the head, the heart, the lungs, or any one or more of the abdominal viscera. Frequently too, it attacks the testicles, and I knew an elderly man, who had it repeatedly in the penis, causing very painful paroxysms. The skin is, moreover, sometimes assailed by it, manifested by an irritation, resembling prurigo formicans, or by some eruption, particularly on the perinæum or about the anus, or vagina. No part of the body has, in short, an immunity from its attacks, which present every diversity of aspect, simulating all other diseases. Thus occurring, it bears a very close resemblance, to retrocedent gout in the same positions.

The causes of these two varieties of the disease are the same as of regular gout. Men of originally delicate constitutions, or rendered so by depraved indulgences, or in any way, are mainly exposed to such aggressions. Even still more, perhaps, are women, especially after the cessation of the menses, under the guise of some one of those numerous and anomalous affections which they are apt to exhibit at that period.

To discriminate between the real gouty and other conditions, which, though apparently similar, are essentially different, is often a matter of considerable perplexity. Chief reliance must be placed, under circumstances of such embarrassment, on an inquiry into the history of the individual, whether there is reason to suspect an hereditary taint, or from certain habits, it may have been acquired, on a careful comparison of the symptoms themselves, and particularly, on the proneness to metastasis.

Generally, irregular gout is exceedingly troublesome in the management, owing to its disguises, fluctuations, and proteiform shapes. Concentrated, and fixedly in a part, as a phlegmasia, it is least so, though immediately more alarming. But oftener otherwise, it preys upon the constitution, involving organ after organ, till ultimately a general cachexy is induced. The result, on the whole, will depend materially, on the condition of the individual, the integrity of his economy, the simplicity or complication of the case, its duration, the organ or organs affected, and the kind and degree of lesion or lesions.

Of the anatomical characters, little seems to be accurately known. We have, however, abundant evidence though not definitely given, of the existence of spasms, inflammation, acute and chronic, with every sort of disorganization, as the case may have been.

In approaching the pathological consideration, the question which I am first to advert to, is, whether these internal affections are really gout, or of a distinct character superinduced on that peculiar diathesis. Each view may possibly be correct, or, at least, that a totally different affection shall sometimes become thus engrafted. Nevertheless, I think the susceptibility of the internal structures in gout can not be doubted on solid grounds, nor that a very large proportion of such instances are of this nature. Believing, indeed, that both propositions are sufficiently established, I shall dismiss them without further enquiry.

Between misplaced and atonic gout, I take the only, or at all events, the chief difference to consist in the former being more fully developed, and inflammatory, though *in error loci*, while the latter is a feeble, ill defined, and rather an irritative state of the same affection. Even this distinction must be received with limitations. Many of the cases of atonic gout with the aspect of debility, or the loss

of tone, I am persuaded, are caused or maintained by chronic phlogosis, or some more serious lesion.

Concerning the treatment of misplaced gout, I have to observe, that we are to be governed by the same principles, and to resort to the remedies, which were detailed in delivering the history of the retrocedent variety of the disease. Let it be here recollected, as a guide to practice, that instead of an inflammatory attack in an extremity, some internal organ is suffering in a similar manner, and requires to be managed accordingly.

It appears very clearly, that in atonic gout, the chylopoietic viscera, are principally, and perhaps it might be affirmed, that they are exclusively the original seat of the disease, those affections remotely distributed, being secondary and dependent on this primordial derangement. By such a view only, am I persuaded, that we can successfully conduct the cure of the generality of these cases. It will sometimes be found, on a careful examination, that chronic gastro-enteritis, alone, or united with functional or other lesions of the liver, is displayed. Can tonics, or cordial stimulants, the customary remedies employed, avail, or rather, would they not be the most inapt or mischievous, which could be selected? Common sense, indeed, dictates an opposite course, or the entire removal of these pathological states, prior to an appeal to any such means. This design having been accomplished, and the restoration of tone seemingly demanded, or in a case originally with this defect only, then may the plan of invigoration be properly entered upon, and with some rational expectation of advantage. But it still more frequently happens, that the chylopoietic organs, without phlogosis, are functionally disordered, showing great depravation in the digestive and nutritive apparatus, resembling ordinary dyspepsia, with its sympathetic disturbances. These several conditions, however, having been amply discussed and disposed of, under the head of the gastric diseases, I shall be content to refer to what was said on that occasion, for the details of the course, as being applicable to the cases now before us. It may, indeed, be enough now to remark, that on the rectification of the organs concerned, by the means formerly mentioned, little else remains to be done in atonic gout, by medicine, than to obviate constipation by magnesia, rhubarb, or sulphur, occasionally directed, and the use of tonics. Of the latter, the chalybeates, alone, or with bark, are much commended. Crude bark, however, I have found to disagree with the stomach, the aromatic decoction or infusion sometimes to answer, and still oftener the tincture, united with one of the martial preparations, though, perhaps, the sulphate of quinine is to be preferred, and certainly as an adjunct to the steel.

Yet there is a writer, who winds up an eulogium on the properties of the bark itself, with the following enthusiastic expression—

"Uno verbo, cortex Peruvianus in podagra, *divinum est remedium.*"

Nearly all of the best authorities, however, seem to unite in denouncing the protracted use of bitters. By invigorating the stomach, they are for a time undoubtedly beneficial—though, a persistence in them, it is alleged, is apt to produce the most pernicious consequences. The power of the system, to throw the disease on the extremities is greatly impaired, and, the individual is rendered miserable, by all the irregular arthritic affections, or he is suddenly destroyed by apoplexy, or has entailed on him palsy, asthma, dropsy, &c. which ultimately prove fatal.

Of the *Portland* powder, you have all heard. This, so called from the duke of Portland, who gave it celebrity, is composed of several of the vegetable bitters, no one of which has much activity; namely, the roots of gentian, and birth-wort, and the tops and leaves of centaury, ground pine, and germander, of equal weights, well dried and pulverised, of which a drachm is to be taken every morning fasting, for months, then omitted for a time, and renewed in less quantity. Yet it is declared by Cullen, by Murray, the author of the "Apparatus Medicaminum," by Darwin, and in short, by many of the best authorities, that this nostrum has proved most hurtful, in the mode I have just mentioned. Exactly the same is said by Galen, and others of the old writers, of nearly a similar compound, which was in vogue in their time. Bitters long continued operate here, by inducing debility of stomach, from over stimulation.

To relieve at the moment, as well as to prevent a recurrence of some of the more harassing affections incident to the disease, as spasms of the alimentary canal, palpitations, &c. &c., I have found the volatile tincture of guiacum, or the carbonate of ammonia, by itself, very serviceable. The Warner's gout cordial, which is an aromatic, carminative tincture of senna and rhubarb, is also deserving of attention. These articles are further calculated to throw the disease on the extremities, an indication never to be lost sight of, or failed to be promoted. By such a translation, when perfect, immediate relief is afforded, however great the previous distress may have been, provided no essential structural lesions have taken place. Directed by this view, a small wine glass full of Warner's cordial especially, should be taken at night, with a copious draught of hot wine whey, a stimulating pedeluvium having been previously used. More active revulsives, as sinapisms or blisters, may also be tried, and I have known in two instances, the wearing of tight boots, to prove effectual.

Not less important than medicines, is a duly regulated regimen, concerning which, however, I have little to add, to what was said on this point, in regard to the stomach affections. It differs chiefly, in the food requiring, in some instances, to be more stimulating, and in a free use of wine.

The gout having been allured to a joint, it will hardly be prudent to attempt any means to lessen the pain or inflammation. But on the contrary, our aim should be, so to establish it, as to let it pass through all the stages regularly, without the least molestation. This is a case which may be properly committed "to flannel, and patient endurance," with the exception, that should it shew a disposition to recede, such an event must be obviated by pretty much the same means employed to bring it to the extremity. We may, however, be compelled to direct wine itself, and more liberally, and also, to resort to opiates, or the carbonate of ammonia, or musk, which last article, though less prescribed, is, when of good quality, one of the most efficient remedies with which I am conversant.

Closing this part of my subject, I cannot forbear to urge the value of our mineral and thermal springs, in their relations to every modification of gout. Those of Europe of a similar kind, have immemorially had an indisputable reputation in this respect, and to which I have reason to believe our own are still more entitled, from greater efficacy. The waters of Bedford in this state, of Saratoga in New York, and of the White Sulphur Springs in Virginia, are eminently calculated to repair the derangements of the primæ viæ, the liver, and kidneys, incident to the disease, and the warm and hot baths in the same neighbourhood as the last, are not less so, to re-establish a healthy condition of the skin, very frequently dry and harsh, with a feeble capillary circulation, to invigorate the nervous system, nearly always out of order, and above all, perhaps, are they serviceable in the cure of muscular weakness of the lower limbs, and the chronic swellings, rigidities and other injuries of the articulations. The first is to be preferred in reference to the general affections named, and the second, to relieve the topical lesions, especially, when applied as douches, followed by frictions and shampooring. Nothing need be said of the influence of the long journey to reach these springs, or of the delicious climate of the locations, or of the charms of the society by which they are distinguished.

Though the complete eradication of gout, in any of its forms, when fully established, is perhaps hardly to be expected, still, by care in the avoidance of the exciting causes, the interval between the paroxysms may be procrastinated, and when they occur, greatly abated. Cullen's directions on this point are so sound, that I cannot, forbear to recommend them to your perusal, and most particular regard.

As indispensable, let me insist on a strict undeviating adherence to a moderate diet. Medical authority, however, differs as to the kind of food. By Redi, Starke, Lobb, &c. the exclusive use of vegetables is strenuously advised, while Brown and his disciples, as strongly urge its being the reverse. Both are wrong. The lowest, and most abstemious diet will sometimes be exacted, and on other occasions, the cordial, and generous. Limitation in quantity, is, perhaps, of as much consequence as the quality of the nutriment. Discrimination is no less to be made in relation to drinks. To some, water alone should be allowed, and others will require a small portion of wine, or of ardent spirits. The great purpose is to preserve soundness of the digestive, and assimilative functions, and the course of living must be accommodated accordingly.

Equally important is it, that habits of indolence, or even of too intense application to study, or any other sedentary occupation, be exchanged for those of activity and exercise. Many, says Hoffman, "have lost their gout, with their fortune," by turning, no doubt, at the same time, from luxury, and lazy enjoyments to laborious pursuits. The eccentric Mr. Abernethey being asked by a nobleman, what would prevent gout, replied in his usual sententious manner: My Lord: "Live on sixpence a day and earn it." These are aphorisms, which, though uttered with some exaggeration, contain a vast deal of wisdom, and might be adopted, with proper qualifications, as a rule of life, in reference to the object in view.

By one of the sages of our profession, gout has been pronounced as proceeding entirely, from "vexation of spirit." Not agreeing entirely with him, the immense influence of moral causes in the origination and maintainance of the disease, seems to be universally admitted. Every emotion or passion, whether of tempestuous excitement, or the reverse, depressive, or worrying and irritative, has such an effect. Equanimity is hence to be cultivated, and which will be most successfully done, by resorting to those sentinels, which philosophy places over us, to protect against the incursions of the evil dispositions by which the soul becomes agitated or disturbed. Nourished by unresistance, a fretted or exasperated temper is held to be especially baneful, and hence, above all, the injunction of the wisest of mortals, should be remembered: "Let not the sun go down on thy wrath."

Yet, admonished as they may be, we shall find our patients, for the most part, reckless of advice; and, like those of the divine, or moralist, our preachings, too often, leave only an evanescent impression. The victims of gout, are also usually the votaries of sensual gratifications. By the ancients, who under the shadow of an allegory, often conveyed a truth, the disease was held to be the progeny of the divinities of love and debauchery. To such persons, as I have alluded to, we shall in vain hold the language of remonstrance, or deliver injunctions to reformation, when opposed by the attractions of the festive board, the seductions of luxurious ease, and the other fascinations and enjoyments of sense and appetite. Ease, in such cases, retracts the vows made in pain, and exclaims with the voluptuous poet of antiquity, "*Vitam faciunt balnea, vina, venus.*"

It remains only to add, that, in gout, the paroxysm may be sometimes warded off, if, on the first signs of its approach, a purge be taken. The same good effect I have also known from repeated doses of the alkalies, or magnesia, the prepared oyster-shell, or other antacids, and also, by the use of colchicum.

An allusion has already been made to the denunciation of the latter article under any circumstances, and more especially, to any thing like an habitual employment of it. But these apprehensions, I must think, are unfounded, and certainly to the extent to which they have been expressed, by some of the European writers. Much as I have prescribed it, never have I known any pernicious effects from it, and, I believe, that it may be always so regulated, as to prove a perfectly safe remedy. There are within the compass of my own experience several individuals who were formerly harassed by floating gout, or frequently repeated regular attacks of it, from which their constitution suffered materially, that have obviated the paroxysms, and greatly improved in health, by a pretty constant resort to this medicine, even for a term of years. It is generally taken in the small dose of ten or twenty drops daily, morning and evening, when any slight indications of gout exist, increasing the quantity considerably, on a stronger manifestation of an attack.

In recurring to the whole of what has been delivered, you will perceive, that I have suggested little very peculiar in the management of gout. Too long, indeed, have we been accustomed to view it with a sort of superstitious awe. We have been afraid

to touch it. Ever since the time of Sydenham, with some few exceptions, the approach of practitioners to this disease, has been singularly marked by timidity, and encumbered with doubt and irresolution. The first step towards a correct investigation of its pathology, and, of course, a more successful practice, is, to discard such apprehensions, and to contemplate it pretty much as ordinary disease, to be cured for the most part, by common remedies.

BIBLIOGRAPHICAL NOTICES.

LECTURES ON LITHOTOMY, *Delivered at the New York Hospital, December*, 1837. BY ALEXANDER H. STEVENS, M. D. Surgeon to the New York Hospital, and Emeritus Professor of Clinical Surgery. *New York: Adlard & Saunders*, 1838, pp. 93. [*With five Lithographs.*]

In 1836 a *grand folio*, splendidly illustrated with ten plates, and produced with much typographical magnificence, appeared in Paris with the *affiche* of a "*Memoire sur une maniere nouvelle de pratiquer l'Operation de la Pierre.*" This was a posthumous production of the late Baron DUPUYTREN, brought to light under the auspices of his literary executors, M. M. SANSON and BEGIN, by whom indeed it was completed, its illustrious author dying before it was finished. The *Nouvelle Methode* proved however, to be a resuscitation of the most ancient kind of lithotomy, which was practised more than two thousand years ago by Ammonius and Meges, at Alexandria and Rome, in the Augustan Age, and of which so accurate a description has been given us by Celsus, (*lib. 7. cap.* xxvii.) that it has been named *Lithotomia Celsiani.* The operation is mentioned more or less minutely in all the old surgical works. At the close of the seventeenth century, RAU of Amsterdam, probably performed the "apparatus minor," (as this method was styled by MARIANUS SANCTUS, in contradistinction to that of his master, JOHANNES DE ROMANIS, which required a chest of instruments) with the improvement of a grooved staff, which was perhaps suggested to him by Frère Jaques, who was at that time operating in Paris. Rau himself was remarkably taciturn respecting his method, and refused to answer any inquiry. Many have given the credit of the addition of a staff, in the Celsian operation, to FABRICIUS HILDANUS. RAOUX performed it in France about one hundred and fifty years ago. Heister described and successfully practised it, and it is said that it was, in some instances, adopted by Frère Jaques himself. M. DUPUYTREN lays no claim to its paternity, having only revived an old and almost forgotten operation, at the same time modifying and adapting it to the present advanced state of anatomical and surgical science.

Conceiving that everything which offers a reasonable prospect of lessening the amount of human suffering as worthy of being received with respect and examined with attention, we shall endeavour to present our readers with an accurate and intelligible account of the *Bi-lateral Operation*, which forms the subject-matter of the work which heads this article. We shall first describe the operation as detailed by Dupuytren; next we shall state the advantages claimed for it by its advocates; examine into the validity of its asserted superiority; compare its results with the average success obtained by the usual means; and, in conclusion, we shall speak of the several instruments employed in its performance.

The three steps of the operation are, first, to expose the urethra by an incision through the integuments, fascia and muscles; secondly, to open the canal; and thirdly, to divide the neck of the bladder and prostate. To accomplish this, the patient is secured in the usual manner, and a curved staff is introduced into the bladder. This is made of wrought steel, with a flat rough ebony handle, having an enlargement in the middle of the instrument, or at the centre of the curve, extending two inches, and is thus accurately adapted to the urethra. The groove is large and deep, with rounded and everted edges, and diminishes gradually until it is lost entirely at the extremity. This is necessary to prevent the arrest of the lithotome, which would occur were its termination abrupt. The staff is now confided to a careful assistant, who maintains it in a vertical direction, the diaphysis of the instrument forming a right angle with the axis of the body, the curved portion being elevated against the symphysis pubis, and not pressed downwards and backwards upon the rectum. The skin, subcutaneous cellular tissue, superficial aponeurosis, and muscular structure are now divided with a double convex-edged scalpel, by a transverse lunated incision across the raphe of the perineum, six lines anterior to the anus, with the horns of the crescent directed towards the os coccygis. Care must be taken that the extent of the wound should correspond throughout its whole depth with the size of the external incision. The knife should pursue the course of an imaginary line extending from the anus to the anterior surface of the bladder and hypogastrium; for, if inclined too much backwards, it must inevitably injure the bulging surface of the rectum. The urethra is entered with the point of the knife, and the groove of the staff exposed for about three or four lines. As at the apex of the urethro-anal triangle the gut is very nearly in apposition with the canal and prostate, great precau-

tion should be observed to keep the point of the scalpel in the groove, to obviate any possibility of its being pierced. The lithotome is now introduced closed, with its convexity towards the sacrum. The contact of the two metallic bodies, communicated to the hand of the surgeon, announces the proper position of the instrument. The surgeon now takes the staff from his assistant, elevates it towards the pubis, and pushes its extremity deeper into the bladder, while at the same moment the lithotome enters the organ along the groove. We are apprised of its presence in the bladder by the gush of urine, and its percussion against the calculus; the staff, on its entry being ascertained, is withdrawn. The lithotome is now turned completely round in the bladder, so that its concavity is towards the rectum. The probable dimensions of the stone are determined, and the screw limiting the extent of divergence of the blades, is adjusted. The centre spring is pressed firmly upon by the surgeon's finger, and the instrument with the expanded blades, is slowly withdrawn, cutting out its own way, the handle being depressed. The operator now puts the index finger of his left hand into the wound, the extent of the incision and condition of the parts are explored, and upon it, as a guide, the forceps are introduced.

We shall now briefly enumerate the advantages claimed for the bi-lateral operation, over the common method, by its partizans. They say that it is simpler, easier executed, and equally safe; that the incision being made at the greatest diameter of the inferior strait, gives an opening of more width; and that it offers the most direct route to the bladder. From these circumstances, they contend, the calculus is more readily discovered, seized and extracted; that, when it is friable and breaks, the shortness and capacity of the passage enable the fragments to be washed out with greater facility and certainty. That the opening being proportionate to the volume of the calculus, there is less risk in withdrawing it of lacerating the surrounding soft parts, and, consequently, the chances of subsequent inflammation diminished. That the limits of the prostate are never exceeded; that the ejaculatory ducts are guarded from any possibility of injury, as well as the large vessels; that there is less danger of wounding the rectum, from the direction of the cut being nearly parallel to that viscus; and finally, that it is adapted to all ages and both sexes.

Let us now determine the value of these statements. Of the fatal cases of lithotomy, two-thirds, it is estimated, die from the effect of inflammation in organs more or less remote from the implicated viscus. Nearly one-fourth perish from hemorrhagy, and the remainder from constitutional irritation, and other as incomprehensible and latent causes. Of those who are destroyed by inflammatory disorders, the seat of these, in the majority of cases, is found to be in the immediate neighborhood of the wound. Examinations after death detect the pelvic viscera, the adjacent serous membrane, and the perineal structure in a state of phlogosis and disorganization. We find the neck of the bladder and the prostate in one of two conditions: either imperfectly divided and severely contused, or, the incision prolonged through the gland into the sub-peritoneal cellular tissue, giving rise to urinary infiltration with its inevitably fatal consequences. Would not these facts then countenance the idea, that the spot usually selected for the performance of the lateral operation, is too narrow, and does not permit an incision of adequate latitude for the extraction of the calculus, without dangerous violence? So long as an instrument so abominably murderous and heathenish as the *gorget* defiles the case of the lithotomist, these evils may be anticipated to a greater or less extent, according as good or bad fortune prevails. While, if the long narrow-bladed knife, now almost universally used in Great Britain, were employed, the incision may be prolonged outwards and backwards to any requisite extent, without risk of trenching on the adjoining cellular texture. To the bi-lateral method must be conceded the superiority, over that with the gorget; whereas if the knife be employed, we conceive that no especial claim can be set up in its favour above the usual lateral section. Its incontestible advantages are, the much less risk of hemmorhagy, there being no danger of wounding the large vessels of the perineum, as well as the incomplete division of the prostate not involving the venous plexus around the gland; and the entire freedom from any chance of emasculation, the seminal ducts not being implicated.

In comparing the actual mortality between the two methods, from separate tables given by M. Dupuytren, we find the balance rather against the bi-lateral operation. Of 356 operations according to the old plan, 61 died, or about 1 in 6; whereas, out of 89 cases in which the *Nouvelle Methode* was practised, 19 died, or 1 in 4 2-3. But M. Velpeau, in a discussion some time since before the French Academy of Medicine, stated that M. Dupuytren lost only 1 in 12, by his bi-lateral section. This compares very favourably with the average mortality from the lateral operation in Paris, which vastly exceeds that of Great Britain or the United States. Sir Astley Cooper estimates that 1 patient in every

8, usually perishes after the operation of lithotomy. Cheselden lost out of 213, 20; or 1 in 10 5-8; Of the first hundred, 6 only, died; of the third fifty, 8; and of the remaining sixty-three, 6. During a period of sixty years, 704 patients were cut at the Norwich Hospital; of these 1 in 8 died. At the Leeds Infirmary, from 1767 to 1817, the mortality was 1 in 7 4-5, according to Dr. Prout; and at the Bristol Infirmary, 1 in 4 1-4. Chelius, in Germany, lost 1 in 22; Petrunti, at Naples, 1 in 25, in private practice; Martineau, 2 in 84, do.; Santuro, 1 out of 56; Vinicel 3 in 83; Pansa, 1 in 70; Ouvrard, 5 in 60. Pajola, of Venice, a pupil of Le Cat, states that he cut 550 patients for stone, with entire success.

In this country the results of several individual operators have been very happy. Of 153 cases cut by Dr. Dudley, 4 only died, or 1 in 38 1-4; Dr. Smith lost 1 in 18 operations. It is much to be regretted that no record has been left by the late Dr. Physick of the number or result of his cases.

We have no intention of agitating here the vexed question of the respective merits of Lithotomy and Lithotripsy, yet we confess ourselves one of those who cherish, and we think with a reasonable prospect of ultimate realization, the hope of ere long seeing the former operation attempted only on extraordinary occasions, when some eccentric annuitant, weary of life, wishes to give himself a chance of ending his "sea of troubles."

It now remains for us to describe the instruments proposed for the section of the neck of the bladder and prostate in the bi-lateral operation. These are the double *lithotome* of M. Dupuytren, and the *Prostatic Bisector* of Dr. Stevens. The incision could be effected perfectly by either the common probe-pointed bistoury, or the *lithotome caché* of Frère Côme, but a double introduction of the instruments would become necessary, delaying needlessly the operation. The instrument of M. Dupuytren is a modification of the common *lithotome*, by M. Charriére, and is simply this. There are two long narrow curved blades, with their cutting edges looking outwards; these fold on each other in a slightly curved case. A spring is attached to the handle, which being pressed upon, the blades quit their sheath and expand to the extent required, which is regulated by a screw, to which an index is attached.

Dr. Stevens' instrument is described by him as follows:

"I venture to offer to the profession a new instrument for the bilateral section of the prostate; in form it resembles a large olive, with a beak at the extremity, with cutting edges at the sides, parallel to its longest axis, and with a straight handle. The instrument, of which there are three sizes, and the manner of employing it, will be readily understood by the annexed engravings. The grooved staff employed in connexion with this instrument, is as wide as the urethra will admit, and the groove gradually terminates as it approaches the end of the staff.

The advantages in the use of this instrument are, first, that the circular form of a transverse section, gives an opening through the gland of three diameters instead of two, as when a flat instrument is employed;—thus it is not necessary to carry the incision so far laterally to obtain an opening of given dimensions; and hence there is less likelihood of hemorrhage from injuring the plexus of vessels that surrounds the prostate.

"Second. The prostate is cut horizontally, and though not absolutely, yet for all practical purposes in its greatest diameter.

"Third. The rectum is pushed back by the convexity of the posterior part of the instrument.

"Fourth. As the prostate is stretched transversely across the instrument, the section is made by a clean cut, and with so little resistance that the instrument does not, like ordinary gorgets, require to be thrust in with force, but may be passed lightly along until the section is completed. Thus there is less danger of wounding the fundus of the bladder by a sudden cessation of resistance from the parts divided; they are, in fact, divided without force.

"Fifth. The easy division of the prostate obviates the danger of tearing the cellular tissue which connects the anterior surface of the bladder to the posterior wall of the ossa pubis." pp. 53-4.

Dr. Stevens thinks "that the double lithotome of Dupuytren ought not to be employed by any one who is not thoroughly drilled in the use of it. He must handle it as he would a double barreled hair-trigger pistol, and be prepared to lacerate the urethra, while passing its beak along the groove of the staff;" and in support of this assertion, cites Sir Astley Cooper on the authority of Dr. Dudley. From not knowing the circumstances of the case, we cannot of course give any positive opinion, but are confident that the Nestor of British surgeons never used the double lithotome of Charriere, and that if there is any foundation for the story, the instrument alluded to must have been the lithotome cachè of Frère Côme. Still we are unwilling to believe that any one of Sir Astley Cooper's acknowledged manual dexterity could have boggled so shamefully as is here represented, and suspect that there is some mistake in the matter. Dr. Stevens is singularly unfortunate in his comparison of the instrument to a "double barreled hair-trigger pistol," inasmuch, as at all times, the blades are completely under the control of the surgeon, and collapse instantaneously when the pressure of the finger is removed. As to the risk of lacerating the

urethra, if the proportion between the size of the lithotome and the groove of the staff, be maintained, this is nearly impracticable, except by a very rough manipulator. Dr. S. thinks, that the opening of a "cutting instrument, even with probe points in a contracted bladder, to be attended with risk." This objection, we conceive, applies with ten-fold force against his invention. He considers the "attempt to make the incisions spheroidal as a useless refinement." The incisions made by M. Dupuytren's lithotome are *inevitably* spheroidal, and constitute the distinguishing feature and superiority of the operation, the free division of the gland facilitating the extraction of the calculus. Dr. Stevens' bisector defeats the main object of the *Nouvelle Methode*, and had he employed either the double-lithotome, or even the *bistouri boutonné*, he would probably not have encountered the difficulty of extracting the calculus which he mentions in his first case. The division of the prostate is not effected at even its greatest diameter, and consequently the incision is not as free as the one obtained by the knife of Cheselden, or that of Sir William Blizard, in the simple lateral section. From the wedge-like shape of the instrument, notwithstanding its cutting edges, the wound inflicted in its passage through a dense resisting medium like the prostate, must partake, to a greater or less degree, of the nature of a penetrating or punctured wound, and the tissue of the gland will be more or less compressed, and even contused.

Dr. Stevens has made some other trifling modifications upon M. Dupuytren's *Nouvelle Methode*, which we cannot conscientiously pronounce improvements, or even recommend their trial.

Dr. Stevens' work deserves certainly a careful perusal, and he himself is entitled to the credit, so far as we have ascertained, of having introduced the *bi-lateral operation* to the notice of the profession in this country. He has as yet employed it himself in two cases only, both of whom were children; the result was successful. We think that the operation possesses strong claims on the attention of the American surgeon, as one which in many instances he may find desirable to practise.

Dr. Stevens announces several other lectures in preparation. These we hope speedily to see presented to the public, trusting at the same time that they will be free from the innumerable typographical errors which disfigure the volume before us.

An Experimental Investigation into the Functions of the Eighth Pair of Nerves, or the Glosso-Pharyngeal, Pneumegastric, and Spinal Accessory. By John Reid, M. D., Fellow of the Royal College of Physicians of Edinburgh, Lecturer on the Institutes of Medicine, formerly Demonstrator of Anatomy, &c. [From the Edinburgh Medical and Surgical Journal. January, 1838.]

This is no essay of an incipient vivisector, but a production of no ordinary character, and meriting from the student of physiology an attentive examination. Dr. Reid's aptitude for the delicate task he has undertaken is of the highest order. His extensive and accurate anatomical knowledge, combined with great manual dexterity, peculiarly fitted him for the enterprize. This paper is characterized by candid statements, cautious deductions, and discriminating reasoning. The exact and ingenuous manner in which all his inquiries are conducted, together with the extraordinary parity of the results obtained, are calculated to inspire the reader with confidence. Independent of a careful repetition of all the experiments, the condition of the parts implicated, were invariably explored after death, to preclude any possibility of deception. He reconciles the discrepancies of previous experimentalists with much acuteness and plausibility. Our author states that "In entering upon this investigation he had no favourite theory to defend, stood committed to no pre-conceived notions, or shackled by any slavish deference to authorities, but was ready and willing to give up any of his former opinions as soon as they appeared inconsistent with the phenomena which presented themselves."

We shall now offer an abstract of this valuable communication to the reader. Our limits will not permit us to enter into the experimental details with any minuteness, and we shall in general avail ourselves of Dr. Reid's resumè.

Our author adopts the old classification of the nervous system, and under the Eighth Pair includes the Glosso-Pharyngeal, Pneumogastric, and Spinal-Accessory.

Glosso-Pharyngeal Nerve. Twenty-seven experiments were performed on dogs, to determine the functions of this nerve. "Seventeen of these were for the purpose of ascertaining if it were to be considered a nerve both of *sensation and motion;* and what are the effects of its section upon the *associated movement of deglutition*, and on the *sense of taste.*" In the remaining ten, the animals were immediately previous deprived of sensation, in order that its property as a *motor nerve* might be satisfactorily settled.

Previous to announcing the results, we shall premise the manner adopted in conducting the experiments, in order that the reader may assure himself of the extreme care observed in all the investigations, and that they may serve as guides to those who may hereafter feel inclined to pursue the same field of inquiry.

"An incision varying in length, in proportion to the size and species of the dog, was made nearly parallel to the back part of the base of the *inferior maxilla*; its posterior termination always extending a short distance over the anterior margin of the *sterno-mastoid muscle*. After cutting through the skin and *platysma myoides*, or *cutaneous* muscle, the two large veins which go to form the *external jugular* were each secured in a double ligature, and cut across between the points tied. The *glands* at the angle *of the jaw* were removed or dissected aside, and the *carotid artery* exposed. The artery was generally first secured in a ligature below the *hypoglossal nerve*, and before it had given off any of its large branches; it was then exposed above the *hypoglossal*, included in a double ligature and cut across. This was found to be the most effectual method of preventing the troublesome hemorrhage, which otherwise is apt to occur from wounding the large arteries, arising from the carotid at this point. After this, by a little dissection, the nerve was exposed as it lies upon the lower margin of the *stylo-pharyngeus muscle*, near its origin from the styloid process. One of the best guides in displaying the nerve, is the *osseous expansion*, connected with the *tympanic cavity* of the *temporal bone*, which is always readily felt after the *carotid* has been exposed. In dissecting the nerve back to the *foramen lacerum posterius*, great care must be taken to separate it from the *pharyngeal branch of the par vagum*; which lies sometimes in immediate contact with it, at other times, one or two lines below, and is frequently united to it by a considerable communicating branch, so that it may readily be mistaken for a large pharyngeal branch of the glosso-pharyngeal. I am afraid, for reasons to be afterwards stated, that sufficient precautions have not been taken by other experimenters to separate these from each other. This is the more necessary, as I am confident that these two nerves differ very materially in function, and this must consequently have seriously affected the results. The superior laryngeal branch of the *par vagum* is placed a short distance below these two nerves, but was rarely seen except when exposed designedly. I have observed very considerable differences in the manner in which the glosso-pharyngeal gives off its branches to the pharynx and fauces; sometimes it begins to give off small filaments soon after it has emerged from the base of the cranium, and continues to give off a number of small branches in succession, until it has furnished all the filaments to the pharynx and fauces; more commonly the nerve forms a sudden enlargement upon the lower margin of the osseous expansion of the tympanic cavity, from which the principal branches to the pharynx and fauces are given off, one or two of which are much larger than the others. It is almost needless to add, that in all the animals kept alive, after section of these nerves for subsequent observations, a considerable portion of the trunk of each nerve was removed." p. 111-2.

Is the *glosso-pharyngeal*, a nerve both of motion and sensation? On this point Dr. Reid says:

"It was found that the muscular movements excited by pinching this nerve varied in degree in different animals, but were always distinctly marked when the precaution was taken to irritate the nerve before it had given off its pharyngeal branches. It was also repeatedly observed, that when the nerve was cut across, irritation of the lower end, or that in connection with the muscles, was followed by no movement; while, on the other hand, irritation of the cranial end, even when the nerve was divided before it had given off a single twig, was followed by as powerful convulsive twitches, as when the nerve was entire. We also remarked more than once, that while the pinching of the lingual branch caused no muscular movements, irritation of one of the pharyngeal twigs was followed by very strong convulsive twitches of the throat and lower part of the face. The capability of this nerve to transmit those impressions which excite *sensation*, was amply proved by the severe and undoubted indications of suffering which in many cases followed the pinching of it with the forceps. In several cases, however, the indications of suffering were much less strongly marked than in others, but that this nerve possesses *common sensation*, in the usual acceptation of that term, I am fully convinced, not only from the results of these seventeen experiments expressly made upon these nerves, but from five others, where they were exposed in displaying the pharyngeal branches of the *par vagum*."—p. 116-7.

These conclusions are in direct variance with the statements of Panizza, Hall, and Broughton, while they support those of Dr. Alcock. Dr. Reid thinks that these gentlemen all operated on different nerves, and thus reconciles the discrepancies of their several views. This he thinks explains the fact, "without seriously impugning the anatomical knowledge, or the acuteness of observation of either party; for," continues he:

"I have no hesitation in saying, that if in these three experiments (Exps. v. vi. and vii.) and in others not detailed here, we had operated on that part of the trunk of the nerve which first presented itself, and not proceeded to dissect it back towards its place of exit from the cranium, we should have gone away with the impression that the irritation of this nerve was followed by no muscular movement, and little if any indications of suffering." p. 117.

Do the muscular movements of the throat and inferior part of the face, which are consequent upon the application of a mechanical or chemical irritant to the glosso-pharyngeal nerve depend upon an inherent motive power, or do they arise from a transmission of the impression along the filaments of sensation to the nervous centres, which being re-

ceived there, is reflected on the contractile tissue through adjacent motor nerves? Upon this question Dr. Alcock is undecided, and hazards no positive opinion. Our author appears satisfactorily to have settled this mooted point, he says:

"In the experiments which I have detailed above, we have, however, sufficient evidence to decide that these muscular movements can only be explained on the supposition that they depend upon some influence transmitted along other nerves distributed to these muscles, and through the intervention of the central organs of the nervous system. We there find, and the facts were still further confirmed by what we observed in other experiments, that irritation of a single pharyngeal twig, or, what is still more conclusive, of the upper or cranial end of the cut nerve, before it had yet given off any of its branches, was attended by as powerful convulsive movements, as when the trunk of the nerve and all its branches were entire and uninjured." p. 119.

Both Mr. Mayo and Müller have contended that the glosso-phryngeal possesses duplicate properties, and that it is both a motor and sensitive nerve, and each has maintained his assertion on separate grounds. Dr. Reid repeated Mr. Mayo's experiment on ten dogs. The nerve was exposed and irritated immediately after death, and though the results were not uniform, there was no satisfactory evidence elicited to sanction the belief that the glosso-pharyngeal was a nerve of motion; no muscular movements were seen on irritating this nerve. The irritation of the pharyngeal branch of the *par vagum* was the test that muscular contractility remained in sufficient vigor to be excited readily through the motor nerves, and also as a standard of comparison. Mr. Mayo's error, it appears, probably arose from the nerve experimented on by him being the pharyngeal branch of the *par vagum*, which lies close to the *glosso-pharyngeal*, the trunks of the two nerves anastomosing frequently by a short branch anterior to the *foramen lacerum*; in which case the pharyngeal branch of the *par vagum*, may, very readily, be confounded with the glosso-pharyngeal nerve. In one subject, which Dr. Reid dissected, a communicating branch connected the trunk of the nerves, before they had fairly cleared the *foramen lacerum*. This intimate association was most likely the source of fallacy in Mr. Mayo's experiment.

Professor Müller's argument, in favour of the compound property, of this nerve is founded on anatomy, and he reasons from its analogical structure to the spinal nerves. The existence of the *ganglion jugulare* of Ehrenritter is beyond doubt, and is probably limited to the posterior root, but the *ganglion petrosam* of Andersh, involving the whole trunk, and situated immediately below the former, impairs the exactness of the resemblance.

The next subject of inquiry is, what effect the section of the glosso-pharyngeal nerve has upon the *functions of deglutition.*

Sir Charles Bell regards the function of this nerve as associating the movements of the tongue and pharynx with the muscles of respiration in the instinctive movements of deglutition. Dr. Alcock, of Dublin, confirmed these views. Dr. Reid invalidates the statements of both of these gentlemen, and proves pretty conclusively that the latter divided the pharyngeal branch of the *par vagum* along with the glosso-pharyngeal, the relation of these two nerves, as before remarked, being so intimate, that they can be only safely distinguished by tracing them to their origin. Dr. Reid experienced much difficulty in effecting the division of the nerve before any twigs had been given off, and it was only after repeated failures that he at last succeeded. Careful *post-mortem* inspection of the parts was made in every instance. So soon as the inflammation and swelling consequent on the injury had subsided, before any possibility of reunion could occur, the animal was enabled to swallow with integrity.

The last subject of investigation is, how the division of this nerve affects the sense of taste. Panizza, Marshall Hall, and the late Mr. Broughton have all endeavored to establish this as the special nerve of taste; while Alcock, and Kornfield of Berlin, have denied to it this function exclusively. Dr. Reid's experiments confirm in every particular the observations of the Dublin physiologist. A portion of the trunk of the nerve was removed on both sides in several dogs, and in all instances a persistence of the sense of taste resulted. Coloquintida was rejected, if offered by itself, but if the animal was very hungry, and the bitter was sprinkled on meat, rather than loose the latter he swallowed both, if he thought he had no chance of obtaining the unadulterated article. Where the nerve was cut on one side only, he ate readily bread dipt in a strong infusion of gentian root. In one case, where the nerve beyond all question was completely divided before a single filament was given off, the dog swallowed eagerly animal food, but a morsel, exact in size and appearance, in which the coloquintida was so concealed as to be detected by taste alone, was instantly rejected. Dr. Reid however, never unreasonably exclusive in his doctrines, thinks it probable that the glosso-pharyngeal nerve may participate in the function of taste, in connection with the lingual division of the third branch of the fifth, and the palatine twigs of the second of the fifth. Dr. Alcock, in his sixth report to the British S. Association, having proved this point pretty conclusively, and it being also supported from the ana-

tomical fact of the mucous membrane and papillæ of the tongue, for one inch anterior to the foramen cœcum, being supplied nearly exclusively by this nerve.

From a review of all the experiments performed on the *glosso-phyrangeal nerve*, by Dr. Reid, he is led to infer the subjoined conclusions.

1. "That this is a nerve of *common sensation*, as indicated by the unequivocal expression of pain by the animal when the nerve is pricked, pinched, or cut.

2. "That mechanical or chemical irritation of this nerve, before it has given off its pharyngeal branches, or of any of those branches individually, is followed by extensive *muscular movements* of the throat and lower part of the face.

3. "That the muscular movements thus excited, depend, not upon any influence extending downwards along the branches of the nerve to the muscles moved, but upon a *reflex action*, transmitted through the central organs of the nervous system.

4. "*That these pharyngeal branches of the glosso-pharyngeal* possess endowments connected with the *peculiar sensations* of the mucous membranes upon which they are distributed, though we cannot pretend to say positively in what these consist.

5. "That this cannot be the sole nerve upon which all these sensations depend, since the perfect division of the trunk of the nerve on both sides does not interfere with the perfect performance of the *function of deglutition.*

6. "That mechanical or chemical irritation of the nerve, immediately after the animal has been killed, is not followed by *any muscular movements*, when sufficient care has been taken to insulate it from the *pharyngeal branch of the par vagum.* And we here again observe an important difference between the movements excited by irritation of the *glosso-pharyngeal* and those of a *motor nerve.* For while the movements produced by the irritation of the *glosso-pharyngeal* are arrested as soon as the functions of the central organs of the nervous system have ceased; those, from irritation of a motor nerve, such as the *pharyngeal branch of the par vagum*, continue for some time after this, and when all connection between it and the *medulla oblongata* has been cut off.

7. "That after perfect section of the nerve on both sides, the *sense of taste* is sufficiently acute to enable the animal readily to recognize bitter substances.

8. "That it probably may participate with other nerves in the performance of the function of taste, but it certainly is not the special nerve of that sense.

"Lastly, the *sensation of thirst*, which is referred to the *fauces* and *pharynx*, does not appear to depend entirely on the presence of this nerve. The animals in which it was divided lapped water of their own accord. I observed one of them in which the nerves were found satisfactorily divided, rise, though very feeble, walk up to a dish containing water, lap some of it, and return again to the straw on which he was previously lying." p. 129-30.

(*To be continued.*)

CLINICAL LECTURES.

PENNSYLVANIA HOSPITAL.

STRICTURE OF THE URETHRA.

Wednesday, January 31st, Dr. Harris commenced as follows:

I propose, gentlemen, to offer a few remarks on the subject of Strictures of the Urethra; and will afterwards introduce several patients affected with this distressing disease. They are all under treatment, and advancing towards a cure.

In order to understand accurately the diseases of the urethra, its length, calibre, and anatomical structure should be thoroughly examined. Discordant estimates have been formed of the length of this canal. Whately, who measured with precision forty-eight cases, fixes the extreme length to nine inches and six lines; and the shortest, to seven inches and nine lines. An African examined by Lisfranc, measured eleven inches. It has been long known indeed, that the genital organs of male and female Africans are more developed than those of the Caucasians.

Ducamp, Meckel, Home, and others, make the average length about eight inches.

We should also acquire data with regard to the diameter of the canal. We can never cure stricture, until the urethra is fully dilated to its natural size.

The estimates of Home, Lisfranc, and Phillips regarding the calibre of the canal, vary considerably. Phillips is of opinion that this difference arises from the different force used in propelling the waxen injection into the canal.

Amussat denies the existence of the dilatation at the fossa navicularis, and states that the urethra represents a cone, of which the base is represented posteriorly. The more common opinion is, however, that it is slightly enlarged through the prostate, and the commencement of the membranous portion, and contracts as it approaches the bulb,—enlarging again suddenly at the commencement of the spongy portion, and afterwards gradually diminishing to the meatus.

The urethra has been divided by anatomists into three portions. That succeeding to, and continuous with the neck of the bladder, has been named the prostatic portion—next is the membranous portion, and the third or remaining portion extends to the termination of the glans. Some writers have named also a bulbous portion; a distinction entirely unnecessary.

The prostatic portion commences at the neck of the bladder, and terminates at the anterior part of the prostate gland. Its length, according to Ducamp, who appears to be the most accurate observer, is from twelve to fifteen lines.

The second and narrower part of the urethra, which succeeds to the prostatic, is named the membranous portion. Its length, according to the same writer, is ten lines.

The next or terminating portion of the urethra, has been named the spongy, from its being surrounded by erectile tissue. Its length is dependent on the greater or less development of the organ. This portion of the canal commences at an enlargement called the bulb, and terminates at another

enlargement called the glans penis. From the circumstances already stated, its length is variable, but is generally about seven or eight inches.

Two views have been entertained with regard to the anatomical structure and physiology of the urethra—the one supporting, and the other denying the muscularity of the canal. Mr. Hunter believed that "the substance of the urethra is muscular, and is therefore capable of contracting the canal so much as to close it up entirely. This makes it subject to diseases peculiar to muscle in general; *which is indeed the only proof* we have of its being muscular."

Mr. Hunter gave no anatomical facts in proof of the muscularity of the urethra; and though the same opinions have been urged by Sir Everard Home, we must decline receiving their bare assumptions for truths, particularly as such views are entirely at variance with the best ancient, as well as modern anatomists.

It may be therefore stated with some confidence, that a spasmodic stricture does not exist, because the tissue of the urethra is not capable of taking on a spasmodic action. Stricture then, has been well defined by Sœmmering to be a thickening of the mucous and cellular membranes of the urethra, to a greater or less extent, produced by inflammation. Sir Charles Bell entertains the same opinion. Lisfranc describes stricture as that state of the urethra in which the canal cannot resume its ordinary capacity, in consequence of the existence of a pathological condition.

If the urethra were originally muscular and contractile, the thickening and callosity of the part must be attended with loss of such contractile power.

Surgeons have confounded the action of the muscles surrounding the urethra, with the powers of the urethra itself. In order to settle this point, Bell instituted some well contrived experiments. He introduced an ivory ball into the urethra, to which a thread was attached, when the canal was found to possess no power to force it forwards. When the ball was covered with irritating ointment, the same want of contractility was apparent. The experiment was made on that part of the urethra anterior to the ejaculator seminis. When, however, the ivory instrument was pushed within the grasp of this muscle, a little effort was found sufficient to throw it forward. Other experiments were made which tended to establish the same point, but which a want of time will not enable me to detail.

It is easy to account for the spasms in the posterior part of the urethra, since five inches of that part of the canal are surrounded by muscles.

The sensibility of the urethra governs the contraction of these muscles. A strict attention to their action in the perineum will explain many of the phenomena attending what is improperly called spasmodic stricture. The sudden diminution in the calibre of the urethra, may arise from a sudden tumefaction of the lining membrane of the urethra —from a strong fluxionary movement of blood into the corpus spongiosum, or from the powerful contraction of the perineal muscles.

The term spasmodic stricture, should therefore be abolished, as this affection can only consist of a permanent thickening, or change of structure in the diseased part of the urethra. The space occupied by this altered structure may be from a line in extent to four or five inches. There may be one contraction, or there may be several.

There is no part of the urethra entirely exempt from stricture; the whole being subject to inflammation, and to the altered structure which it causes. The prostatic portion of the canal is, however, less subject to this disease than other parts. I have never seen a case of stricture in this position, though I am aware that two cases of the kind are reported by Lallemand. The most frequent seat of this disease is from four to six inches from the mouth of the urethra. Phillips states that out of one hundred and seventy-three cases, one hundred and twenty-nine were located between the points last named.

If the question is asked, why the disease is most frequently located in this situation, it will be found difficult to answer. Acute urethritis which has succeeded to contagion, is generally at a point anterior to the curvature of the canal; but this disease commonly results from chronic phlogosis, which has a tendency to be propagated backwards, and to become stationary at the space to which I have alluded. It is the nature of this form of inflammation, as it diminishes in intensity and extent, to concentrate on a particular point; thus gaining in profundity what it loses in surface.

Obstructions to the flow of urine are attended with nearly the same symptoms. Patients do not often notice the first symptoms of stricture. For example, they will have a stricture of some extent without observing any remarkable diminution of the stream of urine. It does diminish in size, however, in proportion to the extent of the obstruction. As the disease further advances, the stream becomes forked or scattered, and is sometimes voided by drops. The stricture at first forms but slowly, but when it has so much increased that the urethra is not relaxed by the force of the urine, then the subsequent advances are more rapid. The patient now occupies more time in urining, and a smaller quantity is evacuated at each period. The desire to urine is felt more frequently; the patient is obliged to rise from bed several times in the night—the discharge of urine is accomplished by long efforts, and with more or less pain and tumefaction of the penis. After having passed a certain quantity, in a few minutes renewed efforts are made, and a further discharge is accomplished; a proof that the bladder was not emptied during the first effort. This is a very common symptom in protracted stricture.

The difficulty in emptying the bladder at one effort, arises from the great length of time required to accomplish this end. In cases of stricture, the expulsion of urine is not complete, because the time which is necessary for the evacuation must exceed that during which the bladder can maintain contraction.

In this stage of the disease exposure to cold, acid drinks, indulgence in venery and stimulating drinks will often place the patient in imminent danger. The passage of urine is so difficult, that instead of a jet to some distance, it falls vertically between the feet. Frequently, indeed, it escapes by drops,

and will require ten minutes to pass three or four ounces. After it ceases to flow the desire to pass more is still pressing.

Under such circumstances the efforts to expel the urine are painfully distressing; the exertions of the patient are such as to cause a general tremor of the extremities, a livid flushing of the face, and perspiration to start from every pore.

I have seen cases where the bladder and its sphincter were so distended by the accumulated urine, that it escaped in a continued and involuntary manner, thus giving the appearance of incontinence.

The urine being thus confined, becomes irritating, and not unfrequently gives rise to inflammation. An afflux of blood is thrown into the vessels of the diseased part, occasioning swelling, by which the passage is closed, and retention of urine is the consequence.

Phlogosis of the urethra, as in other mucous tissues, is attended often with a secretion of a viscid substance which lodges at the stricture, and thus plugs up the aperture and prevents the passage of urine. This secretion often acquires considerable density, and has been forced out in a form which Racine has compared to a piece of vermicelli.

When the patient labours under retention of urine, the danger which menaces him is imminent. The bladder becomes hard, and distended sometimes, until it rises as high as the umbilicus; the desire to urine being most pressing and painful. The abdomen now becomes tender on pressure, the circulation is accelerated, followed by nervous tremors and delirium. If the patient thus situated is not speedily relieved, the bladder and all that portion of the urethra posterior to the stricture, inflames, becomes either ulcerated or gangrenous, and bursts either into the cavity of the peritoneum, or into the cellular texture around the rectum, perineum, or scrotum. In the former case the accident necessarily proves fatal, and in the others where the constitution is vigorous, sloughs may form and be thrown off, followed by urinal fistula. If, however, free incisions be speedily made around the rectum, perineum, and scrotum, so as to allow the extravasated urine to escape, the sloughing may be prevented.

Strictures are, I believe, always produced by inflammation. They may result from gonorrhœa, from the irritation of calculi lodged in the urethra, from contusions, or from irritating or acrid injections. Two years ago, I had a boy eight years of age, under my care, in this institution, affected with an unyielding stricture, produced by a severe blow in the perineum. The assertion, then, that strictures always arise from venereal affections is not correct. The same pathological condition may be found in the œsophagus, the intestines, and lacrymal passages, where gonorrhœal matter is never brought in contact.

A variety of treatment has been adopted by different surgeons in the management of strictures of the urethra. No one of them is adapted to all cases, and yet perhaps each may be found useful under some particular conditions. The several methods shall be briefly detailed. The instruments used for the purpose of removing this disease consist of bougies formed of waxed linen, of catgut, of gum elastic, of flexible metal—apparatus for applying caustic, and for cutting or dividing the stricture. Here are all these instruments spread on the table before you.

These bougies act by producing mechanical dilatation; and their internal pressure causes an absorption of the hardened and altered structure, which constitutes the disease.

If the common or waxed bougie is used, it should be of a large size, smeared with warm olive oil, and passed down the urethra to the obstructed point. If the surgeon is unable to pass the instrument, a smaller and smaller one is to be tried, until one is obtained which may be forced through. The operator may sometimes succeed by allowing the bougie to press on the stricture for a short period, and then push it forward.

There is sometimes a difficulty in ascertaining whether a small bougie has entered the stricture, or has been only bent. When the pressure is removed from the instrument, and it recoils, we may be certain that it has not entered the stricture.

When a bougie is withdrawn the point should be examined, and if it be flattened, or the waxen coat pushed up, we may be sure that it has entered the narrowed part of the canal to an extent corresponding with these impressions. If no great irritation follow the first introduction, the following day the instrument should be again used, and allowed to remain as long as the patient can endure it without suffering. If the introduction be roughly or forcibly made, the urethra may be torn, and hemorrhage to a considerable extent may be the consequence. Such is the great sensibility of the urethra of some patients, that even with the gentlest management, sickness, fainting, and chills may ensue.

It should be a rule not to introduce the bougie until the unpleasant effects of a previous introduction have subsided. While in some cases the instrument may be daily used, in other instances, such is the irritability of the urethra, that days must elapse before the operation can be advantageously repeated.

When the sensibility of the urethra is very great, the use of bougies should be suspended for a time, and leeches should be applied to the perineum, and the patient confined to bed. Under such circumstances the warm bath will be found useful.

When the morbid sensibility of the urethra is removed, the instrument must be resumed, and continued until one of the largest size is easily introduced.

In cases where the stricture has nearly closed the urethra, I have found the common or waxed bougie entirely inefficient. It is too flexible and yielding when small to enable the operator to apply any force to the obstructed point.

In the worst cases of strictures I have found the elastic gum catheters and bougies more useful. Even a small instrument constructed of this material, may be strengthened by a strong iron wire passed within it, so that the operator may apply some degree of force.

When, however, the hard and unyielding stricture is located in the membranous part of the urethra, even this instrument will fail to penetrate the obstruction. Even when strengthened by the wire, it yields at the convex part, and little force is exerted on the disease. To obviate this difficul-

ty I contrived an instrument, which has proved eminently successful in many cases. It consists of a strong and full sized silver catheter open at the extremities, with a series of silver probes of various sizes. In order to prevent the edges of the catheter from wounding the urethra, the end is bevelled in, so that the aperture is in the centre of the instrument. The catheter is now passed down to the stricture, and held firmly by an assistant in this situation, while the surgeon passes down the smallest probe against the obstruction. The probe being supported by the sides of the catheter, any necessary degree of force may be used. The probe passing through its sheath in the centre of the urethra, no fears can be apprehended of making a false passage, if proper care be observed. When it has passed, others of larger size can be made to follow. Instead of the silver probe I have used the catgut in the same manner. The advantage of this substance is, that when it once enters the stricture, moisture is absorbed by it, which causes the instrument to swell to twice its original magnitude. After the stricture is dilated by such means to some extent, then the dilitation must be completed by the ordinary bougies.

I have seen this simple instrument prove successful in so many instances, that I feel great confidence in recommending it to the notice of the profession. It may be purchased of Mr. Rorer, a surgical instrument maker in North Sixth street, beyond Market. Bougies made of gum elastic, or of flexible metal, may now be used until the urethra is dilated to its natural magnitude. After the disease has been entirely overcome, there is frequently a liability to return, unless proper precautions are observed. These consist in an occasional introduction of the bougie at intervals of a few weeks for a year. This is so important, that the surgeon should always instruct the patient in the use of this instrument himself.

When large bougies are required, I prefer the flexible metallic to all others. They are smooth and unirritating, have sufficient firmness for introduction, and may be used without injury for a long period. The gum elastic bougie or catheter, becomes rough and irritating after a few introductions. It has been objected to on account of liability to break, but in a practice of more than twenty years I have never witnessed an accident of this kind.

There are two other methods of destroying stricture; the one chemical, the other mechanical. The first, is the application of a caustic substance, which destroys the animal solid constituting the disease; the second, is the division of the stricture by means of a cutting instrument introduced into the canal.

Caustic was used in such cases by Ambrose Paré, Loyseau, and Wiseman. Hunter adopted a similar treatment, but instead of applying lunar caustic through a canula, as was the practice of his predecessors, he used a common wax bougie, at the extreme end of which was deposited the escharotic. An aperture was made in the end of the instrument in which was placed the caustic, and around which the wax linen was pressed so as to cover it, except at one point. After having the bougie thus armed, it is then requisite to ascertain its precise location. With this view, an unarmed wax bougie is introduced down to the obstruction, and you then measure the exact distance from the stricture to the mouth of the urethra. The distance being marked on the armed bougie, it is well oiled, and passed rapidly down to the stricture against which it is pressed for about a minute. The operation should not be repeated in less than two or three days, and should be thus continued, until the disease is destroyed. The best rule perhaps is not to repeat a second application, until the eschar caused by the first, has been detached.

Unquestionably caustic will cause the destruction of strictures, yet there are objections to its use of a serious character. With the greatest care the sound portion of the urethra is often materially injured. When the slough is cast off, the canal is excoriated, producing ardor urinæ, a profuse, purulent discharge, chordee, swelled testicle, and sometimes suppression of urine. If you apply the caustic to the anterior part of the stricture, the lower, rather than the superior parietes of the urethra is most affected—the sound, rather than the diseased structure is most extensively destroyed, and false passages thus become no uncommon accident.

Many of the French and some of the English surgeons prefer the vegetable to the lunar caustic as an escharotic. The most common rule in its application is to arm the *porte-caustic* and pass it through a canula, by which the urethra is protected. This instrument enters the stricture and applies the caustic to the sides of it, and not to the anterior part as Hunter and Home recommended. The advantages of the vegetable over the lunar caustic are that it is more perfectly under our control. The free application of olive oil, will at once neutralise the vegetable caustic by converting it into soap.

One of the arguments in favour of caustic is that it destroys the indurated substance in the urethra, and thus renders the patient less liable to the disease. This is a mistake. The disease as often returns after it has been treated by caustic, as by the dilating bougie. After both methods, the occasional use of the bougie, and temperate living, is necessary to complete protection.

With regard then to the use of caustic my opinion is that it is more or less dangerous to apply it to the anterior part of a stricture, because it is as liable to burn the sound as the diseased portion; and that there is no necessity of applying it to the side of the disease, because, if you can introduce a *porte-caustic*, you can as readily pass a bougie of the same size. When this instrument has been once forced through a stricture, we may fairly consider it under our control. If a small bougie has once entered the obstruction, there will be little difficulty in passing a larger one, and so on, until the urethra is dilated to its natural size. I therefore believe that where the urethra is not entirely obliterated the disease may be cured by the dilating instruments already mentioned, and without resorting to the harsher treatment by escharotics.

[Dr. Harris now introduced three patients labouring under strictures of the urethra. They were in various stages of treatment. He explained the proper manner of introducing bougies and then passed them into the bladder. One of the patients, whose

urethra was irritable, was thrown into a chill by the operation.]

CLINICAL REPORTS.

PHILADELPHIA HOSPITAL.

Autopsy of Joseph Clark, thirty-four hours after death, by* Drs. Gerhard *and* Goddard.

March 11th, 1838. Body emaciated; slight infiltration of the extremities, with evident fluctuation of the abdomen; percussion flat, throughout the right side of the chest, except near the clavicle; sonorous, in all the left side anteriorly.

Cranium. The vessels of the dura mater contained rather less than the average quantity of blood; the longitudinal sinus was almost empty, containing no coagulum. Pia mater, remarkably free from blood, both in the large and small vessels; arachnoid membrane, moist, with slight effusion upon its under surface, not sufficient to elevate it from the brain. The membrane on each side of the great fissure, presented a milky opacity, with reddening and increased firmness, in the extent at most, of an inch and a half. A few delicate shreds adhered to the most thickened portion of the membrane, and some old cellular adhesions, without reddening of the membrane, were attached to the arachnoid covering the dura mater, but were easily removed from the convolutions, which were paler than usual. The medullary substance of the cerebrum was almost destitute of vascular traces, remarkably pale, and of average firmness. The ventricles contained about half an ounce of serum. The septum lucidum was slightly softened. Strung along the peduncles of the pineal gland were some hydatids of the size of a millet seed. The thalami and corpora striata were firm; the cortical portion of a darker color than the rest of the brain. The base of the cerebrum was free from adhesion. The arachnoid was smooth, with faint opacity at the anterior portion of the middle lobe of the right hemisphere; there was no softening, or morbid change. The crura cerebri of each side were slightly softened, especially near the margin of the left, which was pulpy, to the depth of a quarter of an inch. Pons Varolii, firm. Cerebellum firm and pale on both sides.

In the middle fossa of the base of the cranium was a tumour, about an inch and three quarters long, and an inch wide. It was covered by the dura mater, which adhered closely to it, but presented no opening. On the side next to the brain, the membrane was smooth, except where it was studded with some small whitish bodies, ten or twenty in number, the largest a quarter of an inch broad, flattened beneath the arachnoid, and adherent to the dura mater. Upon removing the membranes, the tumour was seen to be in contact with the first and third branches of the fifth pair of nerves, while the second branch passed through it.

A vertical and transverse section of the cranium was now made, passing downward on a line with the posterior clinoid process. The lower jaw was disarticulated. The anterior portion of the skull was then removed, and a perpendicular section made through it, passing a little to the right of the septum narium.

Right Section. The hard palate was three quarters of an inch in thickness, and was, in a great measure, converted into a scirrhous mass, of the usual cartilaginous consistence. An ulcerated opening existed between the palate process of the superior maxilla and the palate bones. The posterior nares were entirely filled up by the tumour, which penetrated into the sphenoidal sinus, and occupied almost entirely the right half of it. It also passed into the antrum, and extended upwards, as before described, into the middle fossa of the cranium. The turbinated bones were no longer visible. The tumour did not penetrate into the frontal sinus.

Left Section. The mucous membrane of the septum narium was injected, and the tumour, on this side, occupied the whole of the nares, penetrating into the antrum. Its consistence was softer than on the right side. It reached as far as the body of the sphenoid bone posteriorly, but did not extend into the sinus. Its extent posteriorly was not so great as on the right side. The lining membrane of the sphenoidal sinus, was of a dark slaty colour, and thickened. The tumour occupied the cellular structure of the ethmoidal bone. Upon subsequent examination, the lymphatic glands of the neck were found to be converted into a semi-cartilaginous mass, nearly resembling true scirrhus.

Thorax. *Right Side.* The pulmonary and costal pleura was of a pale colour, slightly injected near the summit, where it contained in its thickness numerous whitish bodies, of the size of a pin's head, apparently scirrhous. The lung was compressed to one half the usual size, and infiltrated with serum. The quantity of serum, contained in the pleura, was about three pints; it was a little turbid, but with no trace of pus. The adhesions uniting the pleura, were loose and pale; some of them were soft, but the greater part were organized, and contained blood-vessels.

Left Side. Pleura nearly free from adhesions, except at the summit, containing a pint of liquid. Lungs hard and firm; adhesions pale, containing bloodless vessels. Tissue of the lungs engorged with serum; containing no tubercular masses, except one or two near the summit, about the size of a pea. A cluster of whitish bodies, apparently cancerous, was situated about the middle of the left lung, near its surface.

The pericardium contained about six ounces of serum.

The left ventricle of the heart was six eighths of an inch thick, rather smaller than usual; the semilunar valves slightly thickened. Aorta pale.

The abdomen contained about two quarts of serum.

The liver was rather less than the usual size; very pale; bile scanty and pale.

Spleen small and firm.

Kidneys firm, pale, free from adhesions.

Stomach pale throughout and softened, containing a liquid resembling a solution of gelatine; pylorus slightly thickened.

The small intestines contained a quantity of thin

* The negro, whose upper maxillary bones were removed 16th December. See No. 1, page 7.

yellowish fœces; membranes not injected, pale. Large intestines also pale.

In the bladder no morbid change; it contained a pint of urine.

Muscles dark and firm.

List of Accidents admitted into the Pennsylvania Hospital, from March 21st, to April 4th, 1838.

One compound fracture of the fore-arm, from an injury by machinery: died in two days from mania-a-potu. One case of frost-bite in the fingers and toes: dressed with poultices; full diet and quinine internally; fingers doing well, toes mortified and separating at the second joint. One case of fractured fibula two inches above the ankle joint: dressed with the fracture box; no deformity. One case of extensive lacerated wound of the lower lip: dressed with sutures; union in five days. One case of lacerated wound of the upper lip: the edges were trimmed smooth and brought together with the hare lip suture, and the patient left the house. One case of contusion of the feet in a child, caused by a heavy weight falling on them; dressed with a fracture box and leadwater; since cured. One case of gunshot wound of the arm in a boy, caused by a marble, shot from a gun by a companion. It penetrated the arm a little below the outer condyle, and passed round the humerus to the back part of the arm, above the olecranon, where it was cut out; severe inflammation followed: the arm was placed in a carved angular splint, and poulticed; V. S. at night, ad ℥x. a purge and low diet, with anodynes; inflammation nearly gone, wound suppurating—doing well, little constitutional irritation. One case of fracture of the femur, close to the trochanter, dressed with Physick's modification of Desault's splints.

The lacerated wound of the scalp, mentioned in the last, has nearly healed. The wounded iris, from a blast, has been discharged cured, the sight of the eye destroyed. The sprained ankle discharged, cured in two weeks. The sprain of the wrist and lacerated wound of the hand are still under treatment. The tumour of the breast, reported at length in the last is nearly well, the sutures were removed in eight days, union almost perfect.

FOREIGN SUMMARY.

An hospital has been lately established at Canton, by an American Surgeon and Missionary, the Rev. P. Parker, for the gratuitous relief of afflicted Chinese. Several important operations have been performed, which have created considerable excitement among the Chinese, whose ignorance of surgery and medicine is said to be extreme. Such an institution may lead to the opening of an extended intercourse with this singular people, of whom we as yet know so little.

M. Amussat, in a paper in the Memoirs of the Royal Academy of Medicine, considers the twisting of arteries, or the method of torsion, fully as effectual in stopping hemorrhages as the ligature; while it is often more ready in its application, as it only requires the aid of the operator alone and a pair of pincers, instead of the addition of an able assistant, who is not always to be met with in sudden emergencies. M. Amussat represents this method of securing arteries as advancing, though slowly, and as steadily recommending itself among operating surgeons in France, notwithstanding the opposition with which it might naturally be supposed that it would have to contend.—*Edin. Med. and Surg. Journal.*

Hydro-sulphuretted Baths.—The beneficial effects of sulphur, in diseases of the skin, are well known to all practitioners. It has also been established, that, when administered in baths, sulphur acts more powerfully than when given under any other form. M. Montain, professor at the *School of Medicine*, of Lyons, has lately composed a substance which is well calculated for the preparation of these baths. The following is the formula which he employs.

Powdered sulphuret of calcium, 8 parts.

Hydrochlorate of soda, 2 parts; Mix with one part of any cheap vegetable extract.

Isinglass, 1 part. Make up the whole into balls containing about an ounce and a half.

This preparation possesses the advantages of being very cheap, of not emitting any disagreeable odour, or acting on the vessel which may contain the water.—*London Lancet.*

History of a Female who has four Mammæ and Nipples. *By* Robt. Lee, M. D., F. R. S., Physician to the British Lying-in Hospital, and Lecturer on Midwifery at St. George's Hospital.

The individual in whom the above-mentioned peculiarity presented itself was thirty-five years of age, and was prematurely delivered of a still-born child, on the 20th of July, 1835. The mammæ having afterwards become excessively painful and distended, she was compelled to permit the author to make an examination of them, by which it was discovered that she had two mammæ and two nipples on each side. The inferior or pectoral mammæ were fully developed, and in the natural situation, and their nipples, areolæ, and glands presented nothing unusual in their appearance. Near the anterior margins of the axilla, a little higher up on each side, was situated another mamma, about one-sixth the size of the others. The nipples of these were small and flat, but when gently pressed, a milky fluid flowed copiously from several ducts which opened upon their extremities. When milk was drawn from the lower breasts, a small quantity usually escaped from the nipples of the upper, and when the draught came into the former, the latter invariably became hard and distended. From the flatness of the nipples of the upper breasts, the patient had never been able to suckle with them.—*London Lancet.*

☞ *Complaints having reached us, from several quarters, of the occasional miscarriage of this Journal, we can only say, that each subscriber's number is mailed under the supervision of a careful individual, and by him delivered at the Post-Office of this city. As the number of copies printed will, we fear, fall short of the demand, it will be impossible for us to supply the deficiencies in future.*